



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,823	12/21/2001	Joseph Louis Petrucci JR.	SC0268WD	2500

23125 7590 12/10/2003

MOTOROLA INC
AUSTIN INTELLECTUAL PROPERTY
LAW SECTION
7700 WEST PARMER LANE MD: TX32/PL02
AUSTIN, TX 78729

EXAMINER

CHEN, KIN CHAN

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,823

Applicant(s)

PETRUCCI, JOSEPH LOUIS

Examiner

Kin-Chan Chen

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 12-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the extracted data" in the last line. There is insufficient antecedent basis for this limitation in the claim.

In claim 12, "the extracted data" is vague and indefinite because it is unclear **how** and **when** the data is extracted.

In claim 12, the preamble states that a performance of plasma etch equipment is determined. However, the process steps in the claim do not recite the step of determining the performance of plasma etch equipment. It is unclear how it is determined.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Markle et al. (US 6,046,796; hereinafter "Markle") in view of Coss, Jr. et al. (US 6,594,589; hereinafter "Coss").

In a method for monitoring plasma etching process, Markle teaches that a substrate having a film to be etched may be provided. The film may be etched using plasma etch equipment. An etch rate of the film may be measured and correlated to the OES data (col. 5, lines 41-46), so-called "is calculated during etching of the film" in the claimed invention. The via size (of the film), corner selectivity (of the film), and particle count data (of the film) may be measured and correlated to the OES data (col. 5, lines 41-46), which reads on "calculating a non-uniformity of the film" in the instant claims because via size, corner selectivity, and particle count data of the film comparisons are all related to the non-uniformity of the film. Markle also teaches that data may be compared with the predetermined data in specification to determine if data is within a specification (col. 9, lines 50-60; col. 10, lines 1-8). Markle (abstract; Figures) shows the applications of using OES in the plasma etching process. With thickness of film being etched and data generated from OES available, it would have been obvious to one with ordinary skill in the art to perform the calculation and data manipulation for etch rate. Markle does not explicitly relate the process to the performance of plasma etch equipment.

In a method for monitoring process tool (equipment) for semiconductor device manufacturing, Coss teaches that a semiconductor wafer may be etched using an etching equipment. The tool parameter may be monitored and received related to the

processing of a workpiece (abstract). Data that depend on the performance of etching equipment may be extracted. The extracted data may be compared with predetermined data. The performance of the etching equipment may be decided as to whether it is acceptable on the basis of a result of the comparison. (col. 1, lines 25-50; col. 2, lines 15-35; Figs 1 and 4). The quality and property of wafer processed by the tool (equipment) may be correlated to the performance of the etch equipment (col. 2, lines 23-27). Coss discloses that the system may be a variety of processing tools for the semiconductor device fabrication including photolithography, etching, and deposition. Hence, it would have been obvious to one with ordinary skill in the art to include plasma etching system because it is one of the most commonly used etching system in the semiconductor device fabrication.

The above-cited claims differ from the combined prior art by specifying well-known features (such as calculating the etch rate using interferometric endpoint signals) to the art of semiconductor device fabrication. It is the examiner's position that a person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify the combined prior art by adding any of same well-known features (conventional materials and process) to same in order to provide their art recognized advantages and produce an expected result. It is noted that applicant did not traverse the aforementioned conventionality (e.g., well-known features, obviousness), which have been stated in the previous office action (August 25, 2003).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (703) 305-0222. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (703) 305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2934.

December 5, 2003 -


KIN-CHAN CHEN
PRIMARY EXAMINER